The DENTAL DIGEST

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THE FIRST HUNDRED YEARS

AUGUST, 1936
Vol. 42 No. 8

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The DENTAL DIGEST

VOLUME 42 — *August, 1936* — NUMBER 8

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EXTRA-ORAL ROENTGENOLOGY

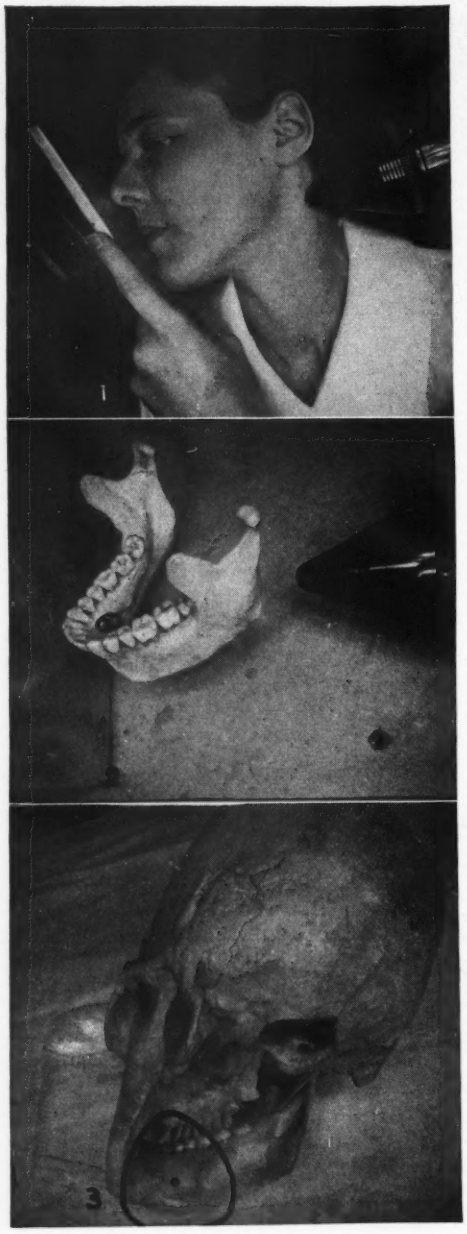
GEORGE W. MATTHEWS, B.S., D.D.S., M.S.

Birmingham, Alabama

DENTAL roentgenologists who are not making use of extra-oral views of the jaws are not availing themselves of one of the best diagnostic aids at our disposal. Information can be obtained regarding structures which cannot possibly be seen in intra-oral views. Extra-oral roentgenograms are also valuable when used in conjunction with intra-oral ones to show better relationship of structures. The operator can orient himself much better when the entire jaw is shown on one plate, rather than when several small roentgenograms are used.

Indications

Extra-oral roentgenograms are invaluable in oral surgery and in diagnosis of an obscure condition or re-



TECHNIQUE FOR SYMPHYSIS OF THE MANDIBLE (Figs. 1, 2, 3, 4)

Fig. 1—**Head and Casette Position**—Patient seated sidewise in chair, casette resting on head-rest at angle of 45° with the floor, and steadied with patient's hand on lower corner. Patient's head is thrown backward as far as is comfortably possible and the chin and nose pressed firmly against the casette, so that the casette forms an angle of 45° with the sagittal plane of the head.

Figs. 2 and 3—**Position and Direction of Tube**—Tube is positioned under, behind, and slightly median to the angle of the jaw and directed so that the central ray will hit the casette at a mesio-distal angle of 90° and a vertico-horizontal angle of about 70°. The central ray will pass between the cervical vertebrae and the ramus opposite to the side being roentgenographed, and should be directed at the lower cuspid region.

Fig. 4—**Roentgenographic Anatomy**—A clear view is obtained of the mandible from the second molar region to the median line. The roots of all teeth can be seen and also the cancellous bone and cortical plate of inferior border. The cervical vertebrae are superimposed over the inferior border of the mandible below the molars. The radiopaque area at the lower border of the mandible directly below the bicuspids is the hyoid bone.

This view is important in early diagnosis of osteomyelitis which frequently begins in the region of the mental foramen, necrosis originating from the anterior and bicuspid teeth, and fractures in the anterior part of the mandible.

flex pain in the jaws. Among the more common conditions disclosed by a careful and systematic extra-oral examination are: cysts, fractures, osteomyelitis, necrosis, odontomas, impacted, unerupted, and supernumerary teeth, and foreign bodies.

Although it must be emphasized that extra-oral roentgenograms are an adjunct to intra-oral ones there are unusual cases in which they are actually substituted in place of intra-oral views. These are:

1. Cases of trismus of the jaws in which a film cannot be placed and held inside the mouth.
2. Swelling and edema of the floor of the mouth, preventing placing of a film packet.
3. Patients who gag violently when a film touches the soft palate despite all the standard preventives.
4. Lower third molar cases in which the film packet cannot be placed far enough posteriorly to include a horizontal or mesio-angular impaction owing to the posterior edge of the film striking the pterygoid muscles and the pharyngopalatine arch. There are many cases of this type.
5. Very young children.

It must be borne in mind that the field of extra-oral roentgenology covers a great deal more than lateral views of the jaws. There are lateral views of the skull, anteroposterior views of the skull, special views of the temperomandibular articulation, and the various views for diagnosing conditions of the paranasal sinuses. In this article the lateral views of the jaw will be discussed. There are four variations of this view: (1) view of the symphysis of the mandible; (2) view of the body of the mandible; (3) view of the angle of the mandible, and (4) view of the ramus of the mandible.

Interpretation

Interpretation of lateral jaw roent-

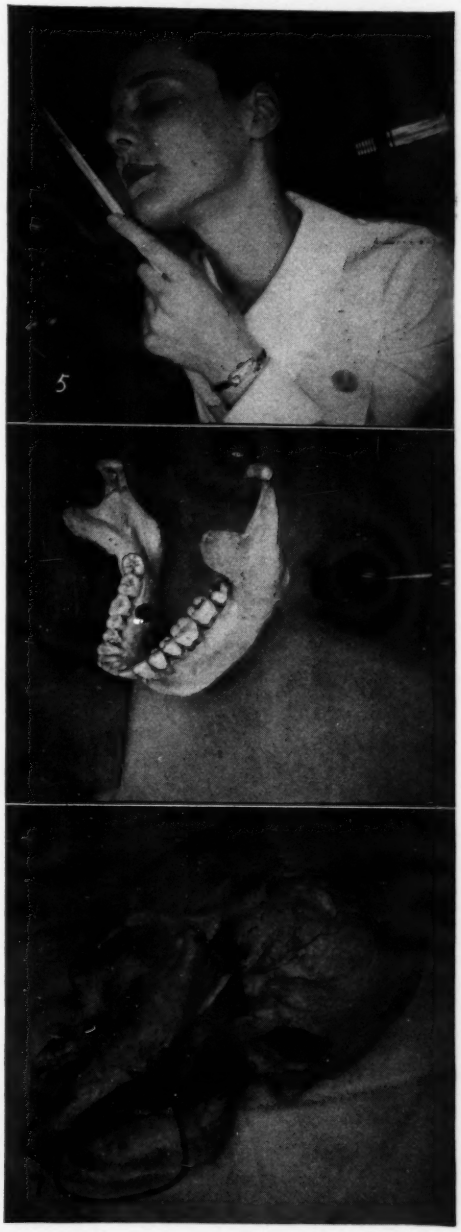
TECHNIQUE FOR THE BODY OF THE MANDIBLE (Figs. 5, 6, 7, 8)

Fig. 5—**Head and Casette Position**—Patient seated sidewise in chair, casette resting on head-rest at an angle of 45° with floor, and steadied with patient's hand on lower corner. Patient's head is thrown backward as far as is comfortably possible and the cheek pressed firmly against the casette at such an angle that the tip of the nose is about an inch from the casette.

Figs. 6 and 7—**Position and Direction of Tube**—Tube is under the angle and directed so that the central ray will hit the casette at a mesio-distal angle of 90° and a vertico-horizontal angle of 70°. The central ray will pass between the cervical vertebrae and the ramus of the side opposite to that being roentgenographed, and should be directed at the first molar region.

Fig. 8—**Roentgenographic Anatomy**—A clear view is obtained of the body of the mandible from the third molar to the cuspid region. A clear profile view of the lower bicuspid and molar teeth is also shown but a good profile view of the uppers is not obtained owing to the fact that the rays do not pass directly through the contact points of these teeth; some overlap and distortion occurs. The mandibular canal can be traced just inferior to the roots of the molar teeth and the mental foramen can be seen directly between the apexes of the bicuspids. The radiopaque area at the lower border of the mandible directly under the first molar is the hyoid bone, and the cervical vertebrae are superimposed on the ramus.

Incidental Features—The upper and lower third molars are impacted and there is apparently some pericoronal infection of the lower third molar. There is apparently decay under the restoration in the lower first molar.



genograms requires a thorough knowledge of the normal anatomy of the head and particularly of the neck. The superimposition of structures must be taken into consideration and due allowance made for it. Radiopaque structures, through which the rays pass between the tube and the jaws, cast radiopaque areas over the image of the jaws on the plate; likewise, radiolucent structures, through which the rays pass between the tube and the jaws, cast radiolucent shadows on the plate. Both of these normal anatomic conditions have been misinterpreted as pathologic conditions.

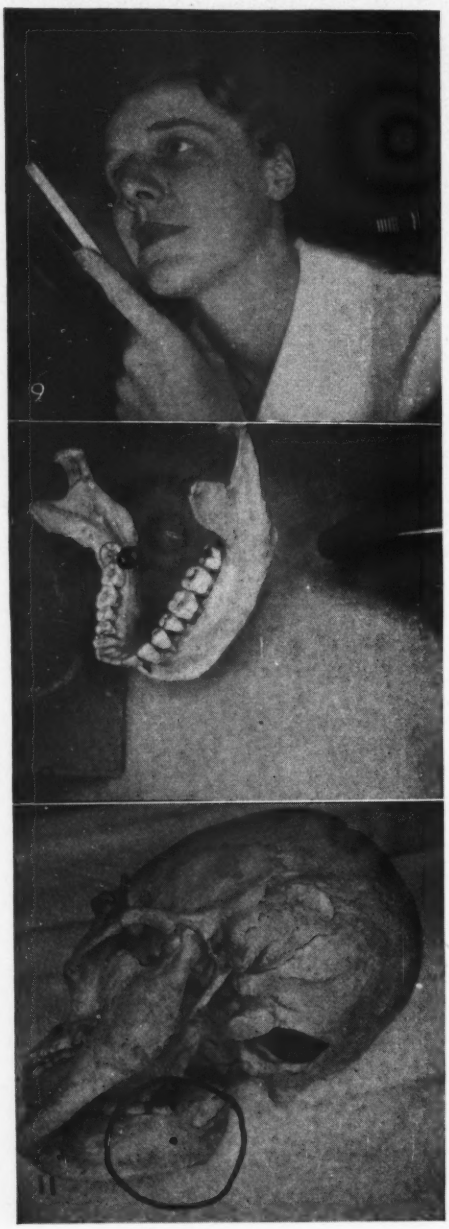
The most commonly superimposed structures are: (1) the maxilla and mandible of the side nearest the tube superimposed on the anterior part of the side being roentgenographed; (2) the cervical vertebrae; (3) the hyoid bone; (4) the cricoid cartilage; (5) the pharynx; (6) the tongue; (7) the palate and uvula, and (8) the zygomatic arch.

In addition to recognizing these normal anatomic conditions the oral diagnostician must, if possible, recognize and interpret the various pathologic lesions in their incipience. The classic roentgenographic appearance of osteomyelitis in its early stages should be known and instantly recognized; fine line fractures in obscure regions, such as the head of the condyle, should be detected; necrosis and sequestrums should be recognized, and foreign bodies should be located by views from different angles.

General Technique

1. All four variations of lateral jaw roentgenograms are best made in a dental chair, with the patient seated sidewise and the casette resting on the head-rest at about a forty-five degree angle with the floor.

2. With an intensifying screen and super-speed film, an exposure of one and one-half seconds is usually all that is needed with the average den-



TECHNIQUE FOR ANGLE OF THE MANDIBLE (Figs. 9, 10, 11, 12)

Fig. 9—**Head and Casette Position**—Patient seated sidewise in chair, casette resting on head-rest at an angle of 45° with the floor. Patient's head thrown backward as far as is comfortably possible and the cheek pressed firmly against the casette so that the ramus of the mandible lies flat against it. The tip of the nose will be about 1½ inches from the casette. The patient steadies the casette by holding the lower corner.

Figs. 10 and 11—**Position and Direction of Tube**—The tube is positioned under the angle of the jaw and directed so that the central ray will hit the casette at a mesio-distal angle of 90° and a vertico-horizontal angle of 70°. The central ray will pass through the third molar region of the side being roentgenographed.

Fig. 12—**Roentgenographic Anatomy**—A clear view is obtained of the inferior border of the mandible from the mental foramen region back to and including the angle. The body of the opposite side is superimposed over all the teeth except the molars in this view. The pharynx is superimposed over the ramus of the mandible which accounts for the radiolucent appearance. The radiopaque area seen on the anterior half of the ramus is caused by the division of the pharynx into its oral and nasal parts. The radiopaque area in the pharynx just inferior to the angle is part of the hyoid bone. The mandibular canal can be seen running through the body of the mandible right at the third molar roots and well down below the roots of the other molars. The radiolucent area in the posterior half of the ramus is caused by the mandibular fossa and foramen.

Incidental Features—There is a fracture of the mandible just distal to the third molar which has virtually united. The mesial root of the lower third molar is fractured. This tooth was left in place until after the fracture was united to prevent the posterior fragment from rising. There is considerable periodontal involvement of both upper and lower molars. Calculus can be seen at the necks of all these teeth. The radiopaque area just distal to the lower third molar which has the appearance of a root is merely contrast between the radiolucency of the anterior wall of the pharynx and the line of fracture.

tal machine. It has not been found necessary to secure the patient's head to the casette with a bandage for stability. This method is recommended by such authorities as Ennis and Simpson, and no doubt is essential in anteroposterior views when eight seconds and longer are required; but if the casette is placed firmly on the head-rest with the patient's face firmly against it, and the casette steadied with the patient's hand on the lower corner—then there is no movement.

3. The patient is instructed to hold his breath just prior to exposure, and also not to swallow. Swallowing during exposure causes an abnormal radiolucency of the pharynx.

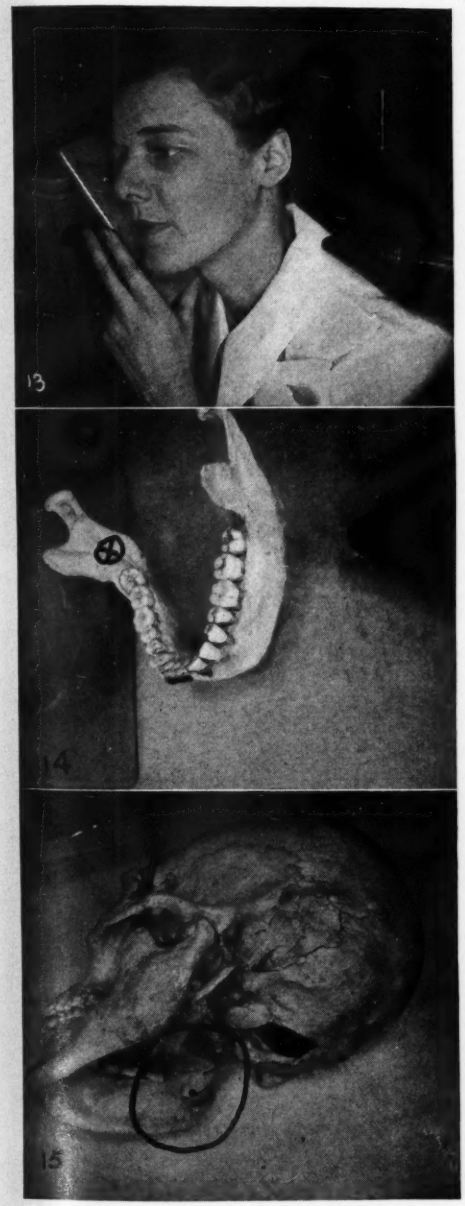
Processing

As stated the best results are obtained by using a casette with intensifying screens. These screens must be kept scrupulously clean and no dirt, dust, or drops of water allowed on them. In opening the casette and removing the film, care must be exercised not to slide the film across the screen, as friction produces static electricity which sometimes shows on the roentgenogram in the form of something that looks like a bolt of lightning.

The best results are obtained by developing at 65° F. for five minutes. If this produces a roentgenogram that is too dark the exposure time should be reduced.

Target-Film Distance

It will be noted in the accompanying illustrations that the point of the cone is either touching or near the patient's face. This is only done in order to include the cone in the illustration. In actual practice much better results are obtained by backing up the tube to at least 18 inches or 2 feet. This gives less distortion and much clearer definition. Of course, the time will have to be increased accordingly, but this can be determined by each operator for his own machine.



TECHNIQUE FOR RAMUS OF THE MANDIBLE (Figs. 13, 14, 15, 16)

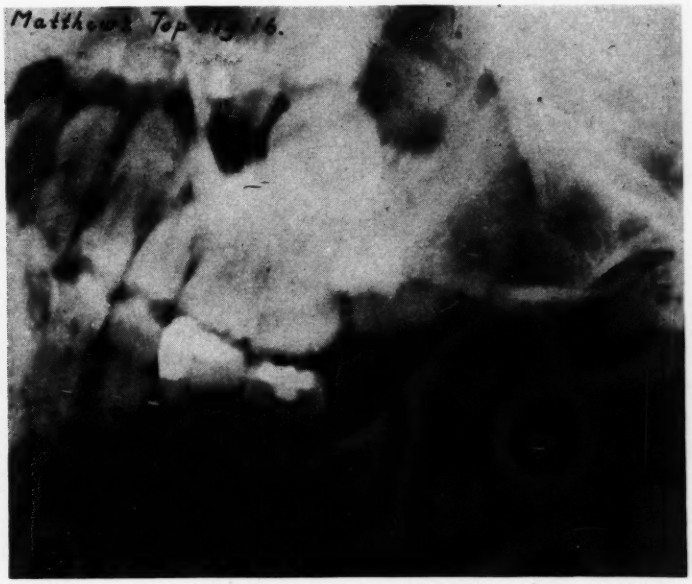
Fig. 13—**Head and Casette Position**—Patient seated sidewise in chair, casette resting on head-rest at angle of 45° with the floor and steadied with patient's hand on lower corner. Patient's head is thrown backward with the external ear flat against casette. An imaginary line drawn through the two external auditory meatuses should be perpendicular to the casette.

Figs. 14 and 15—**Position and Direction of Tube**—The tube is positioned under, and slightly anterior to angle of the jaw, so that the central ray will hit the casette at a mesio-distal angle of 90° and vertico-horizontal angle of about 60°. The central ray will pass directly through the center of the ramus.

Fig. 16—**Roentgenographic Anatomy**—A clear view is obtained of the ramus of the mandible, the head of the condyle, and the glenoid fossa. The body of the mandible of the opposite side is superimposed on all the teeth except the two lower molars. The radiolucent area across the neck of the condyle is caused by the pharynx and is apt to be misinterpreted as a fracture in this region if one is not thoroughly familiar with his roentgenographic anatomy. The zygomatic arch can be seen running from the head of the condyle to the upper third molar. The anterior part of the glenoid fossa can be seen running down to the zygomatic arch. The radiopaque streak extending from the anterior surface of the ramus down across the two molar roots is caused by the internal oblique ridge.

This view of the mandible is indicated in cases suggestive of fracture involving the coronoid processes or head of the condyle, fracture of the zygomatic arch and any disturbances of the temperomandibular articulation.

It is also valuable in cases of osteomyelitis which attacks the ramus of the mandible more often than it does the body.



Protective Life Building.

ADMINISTRATION OF ETHYL CHLORIDE ANESTHESIA

JULIUS A. GREENHOUSE, D.D.S.
Rochester, New York

ETHYL chloride is easily administered; its action is rapid, and there is ample time between the administration of the anesthetic and the return of sensation to the patient for the operator to perform whatever surgery is necessary.

Contra-Indications

Ethyl chloride was administered to children who were known to have heart disorders with no untoward results. The following conditions contra-indicate the use of ethyl chloride: (1) abnormally enlarged tonsils; (2) obstruction of air passages; (3) diseases of the lungs; (4) diseases of the circulatory system, and (5) *status lymphaticus*.

Classification

Anesthetics are divided into two broad groups: general and local. By *general anesthesia* is meant the narcosis of the central nervous system. *Local anesthesia* affects a localized area by direct action of the agent on the terminal nerve endings. Ethyl chloride is being used both as a general and as a local anesthetic.

Classes of General Anesthesia—Flagg subdivides general anesthesia into two classes: complete and incomplete. Ethyl chloride is useful in dentistry because it can be used as an incomplete anesthetic.

Stages in Complete Anesthesia—There are three distinct stages in complete anesthesia:

1. Stage of induction (analgesia):
   (a) Period of excitement.
   (b) Period of rigidity.
   (c) Period of relaxation.
2. Stage of maintenance (anesthesia):
   (a) First plane of surgical anesthesia: (1) eye reflex abolished; (2) oscillation of eyeball; (3) rhythmical breathing.
   (b) Second plane of surgical anesthesia: eyeball fixed off center.
   (c) Third plane of surgical anesthesia: eyeball fixed in central position.
3. Stage of recovery.

These stages and periods of anesthesia are not definite and complete, but blend into one another and there is considerable overlapping. The anesthetist must be constantly on guard.

Ethyl chloride is not desirable as a complete anesthetic. The margin of safety between the amount of the drug necessary to give complete relaxation and the amount producing toxicity is too narrow. Large doses of ethyl chloride rapidly given may cause cessation of respiration and spasm of the diaphragm.

Incomplete Anesthesia—In incomplete anesthesia, the patient is carried through the stage of induction, as far as the period of rigidity. The patient then returns to the stage of recovery, there being no period of relaxation nor stage of maintenance.

Technique of Administering Ethyl Chloride

Ethyl chloride is administered in small doses with large amounts of air.

Broadly speaking, there are two methods of administering ethyl chloride: what may be called the Jacob's or gauze technique and the Feldman or ether mask technique. Each method has its advantages, but the mask technique will be discussed here.

1. The patient is seated in the chair and the chair tipped backward so that the patient is in a semireclining position with body and head in a straight line (Fig. 1). The head should not be too far backward or forward.

2. A mouth prop is placed in position on the occlusal surfaces of the teeth on the opposite side from the field of operation. The patient is instructed to bite down on the prop.

3. The middle finger of the left hand is placed on the prop so as to prevent the patient from pushing the prop out of the mouth; at the same time the little and third fingers rest under the chin (Fig. 2).

Fig. 1—Patient in a semireclining position with body and head in a straight line.

Fig. 2—Middle finger placed on prop so as to prevent patient from pushing it out of mouth; at the same time little and third fingers rest under chin.

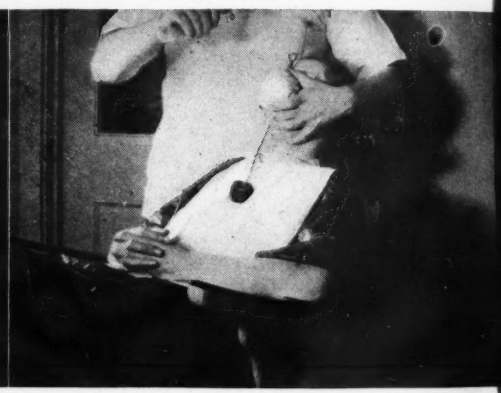


Fig. 3—Head of patient encircled in gentle grip between operator's body and left forearm.

4. An ether mask (carrying from four to six layers of gauze) is placed in position on the middle finger and bridge of the nose, and the mask is held with the thumb at the upper end and the index finger at the base.

5. While the mask is being adjusted, the operator encircles the head of the patient so that it is in a gentle yet firm grip between the operator's body and left forearm (Fig. 3).

6. The ethyl chloride tube is held in the right hand and the anesthetic is either dropped or sprayed. When spraying the drug on the mask or gauze, the palm of the hand rests intermittently for a second or two, on the gauze, so that the heat of the hand prevents the ethyl chloride from freezing on the mask and shutting off the air or preventing the patient from getting the proper amount of anesthetic (Fig. 4).

7. When the anesthetic has been administered a mouth pack is inserted to keep the blood or tooth particles from being aspirated. The dentist then has about two minutes in which he can accomplish his operation (Fig. 5).

Clinical Use

1. Success in the administration of ethyl chloride depends on experience.

2. The chief usefulness of ethyl chloride is in operations of short duration (from 1 to 2 minutes), especially in children in whom muscular relaxation is not required.

3. As the drug acts rapidly, everything should be in readiness before induction is begun.

4. As the ethyl chloride is dropped or sprayed, consciousness is usually lost in from 30 seconds to 1 minute. When eyeballs are rolled up or down and a *slight snore* is heard (Fig. 6), the patient is ready for the operation.

5. Ethyl chloride is a cumulative anesthetic and should not be pushed too enthusiastically.

6. Usually about 3 cc. of the drug is administered.

Advantages

The following are the advantages in the use of ethyl chloride:

1. Safe.
2. No after-effects.
3. Rapid recovery.
4. Rapid action.
5. Ease of administration.
6. Small amount of anesthetizing agent necessary for the production of incomplete anesthesia.
7. Inexpensive.
8. Nonirritating.
9. Symptoms of anesthesia readily recognized.

Danger

Danger in the use of ethyl chloride is due chiefly to interference with respiration or circulation. Cyanosis is not due to toxic effects from ethyl chloride, but to the incorrect position of the head, insufficient air or me-

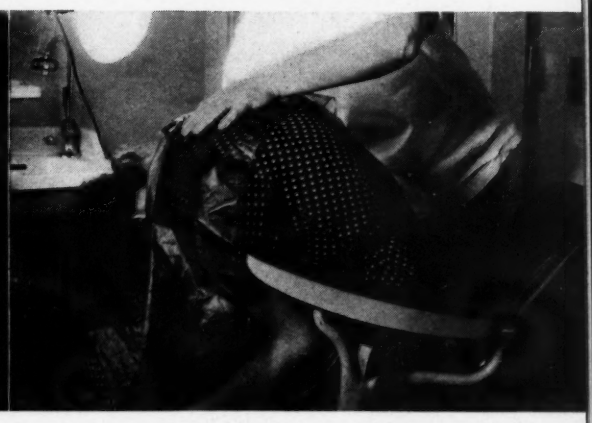
(*Continued on page* 271)

Fig. 4—Ethyl chloride tube held in right hand and anesthetic being sprayed on mask. Palm of hand resting a moment on gauze to prevent ethyl chloride from freezing on mask.

Fig. 5—Insertion of mouth pack to keep blood or tooth particles from being aspirated.

Fig. 6—When eyeballs are rolled up or down, patient is ready for operation.

Fig. 7—Should cyanosis develop, mask is removed with forefinger of right hand and posterior third of tongue is moved forward to open throat and permit air to enter.



Figs. 8 and 9—Treatment demonstrated in the event of labored breathing.

"THE FIRST HUNDRED YEARS..."*

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Milwaukee

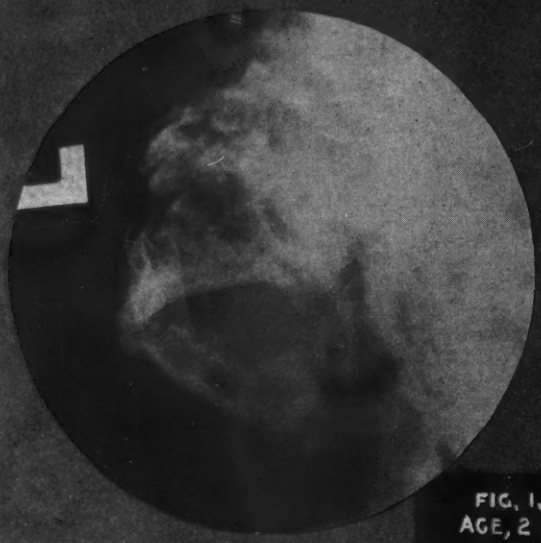


FIG. 1, A.
AGE, 2 DAYS

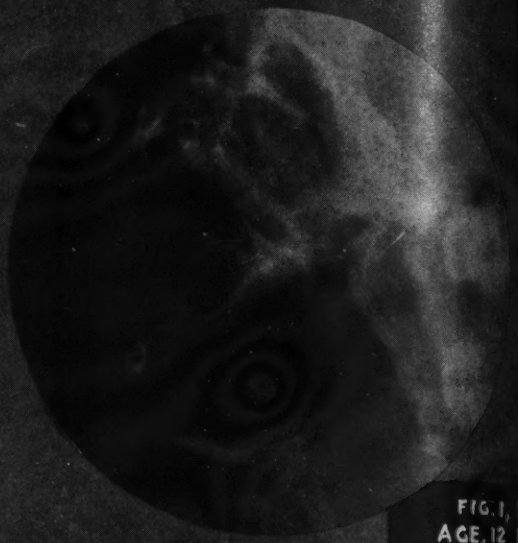


FIG. 1, B
AGE, 12 D

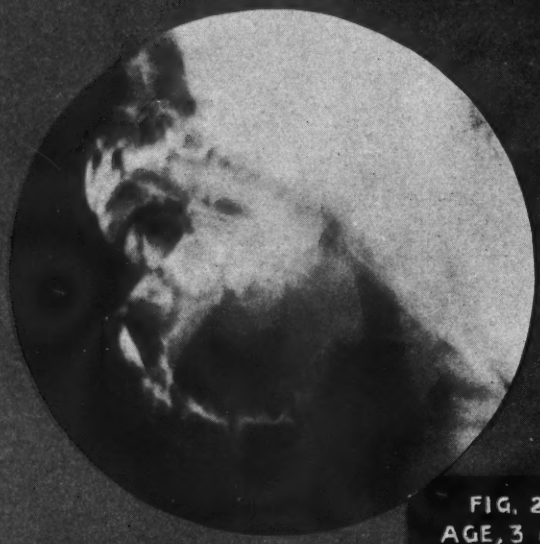


FIG. 2, A
AGE, 3 MONTHS

FIG. 2, B
AGE, 3½ MO

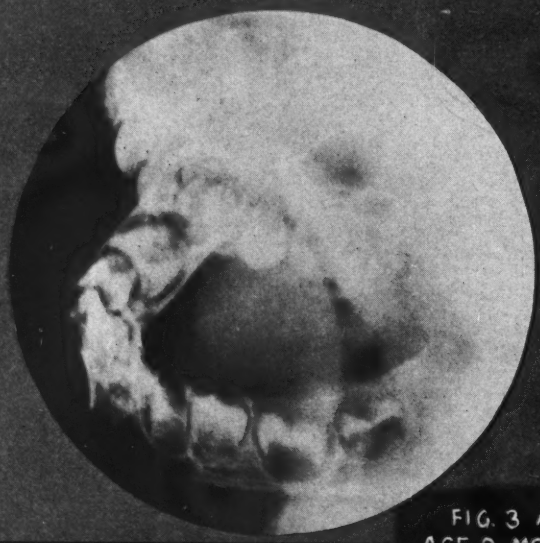


FIG. 3 A
AGE 9 MONTHS

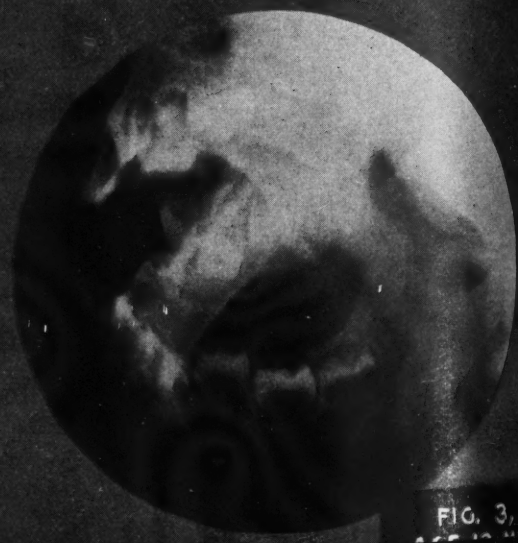


FIG. 3, B
AGE 12 MON

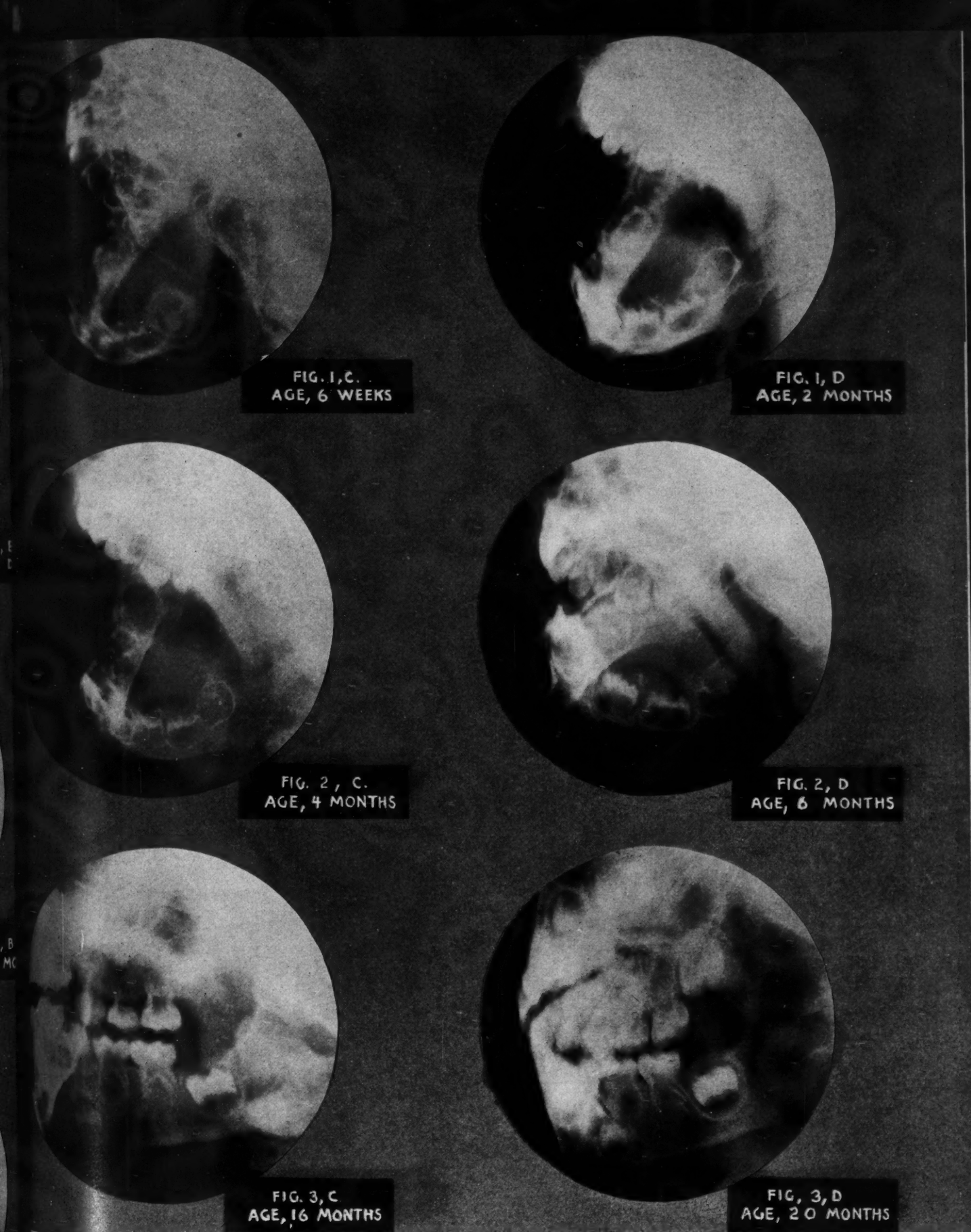


FIG. 1, C.
AGE, 6 WEEKS

FIG. 1, D
AGE, 2 MONTHS

FIG. 2, C.
AGE, 4 MONTHS

FIG. 2, D
AGE, 6 MONTHS

FIG. 3, C
AGE, 16 MONTHS

FIG. 3, D
AGE, 20 MONTHS

*This series of roentgenograms had its beginning more as a hobby than as a scientific venture. When the characteristic as well as unusual features began to unfold themselves, a more concentrated effort was made to obtain "types."

There has been little chance to standardize. No attempt has been made to show normal tooth eruption and jaw development at stated ages. These roentgenograms were selected from a large collection because of individual, interesting factors; such as, the result of too early extraction of the deciduous molars and the contrasting picture of retaining the deciduous teeth too long. To "see" the crowns of the teeth calcifying and the teeth erupting; to realize that the tooth bud of the first permanent molar was in evidence at birth—these, and a dozen other observations, prompted the publishing of this series of roentgenograms showing the mouth as it may appear at each of the various age groups.

Fig. 1—Calcification of the cusps of the deciduous teeth and the development of the tooth bud of the first permanent molar.

Fig. 2—Completion of the development noted in Fig. 1. D shows the calcification of the cusps of the permanent first molar.

Fig. 3—Normal eruption of the deciduous teeth from 9 to 20 months

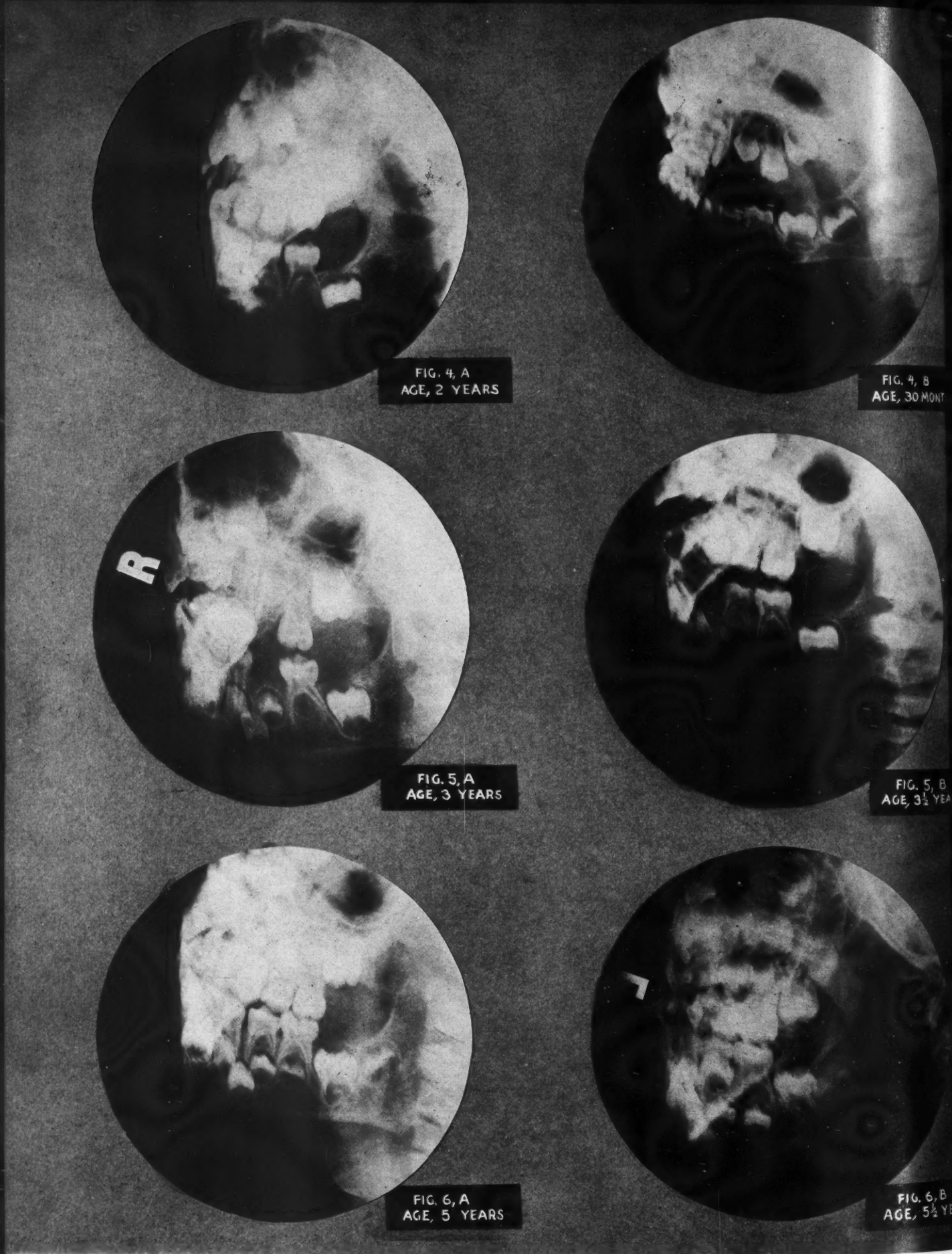


Fig. 4—Compare B, appearance at 30 months, with A, C, and D. B demonstrates a late development and eruption of the teeth and a tardy development of the jaw itself. Compare the obtuse angle of the jaw with the normal angle in A (appearance at 2 years).

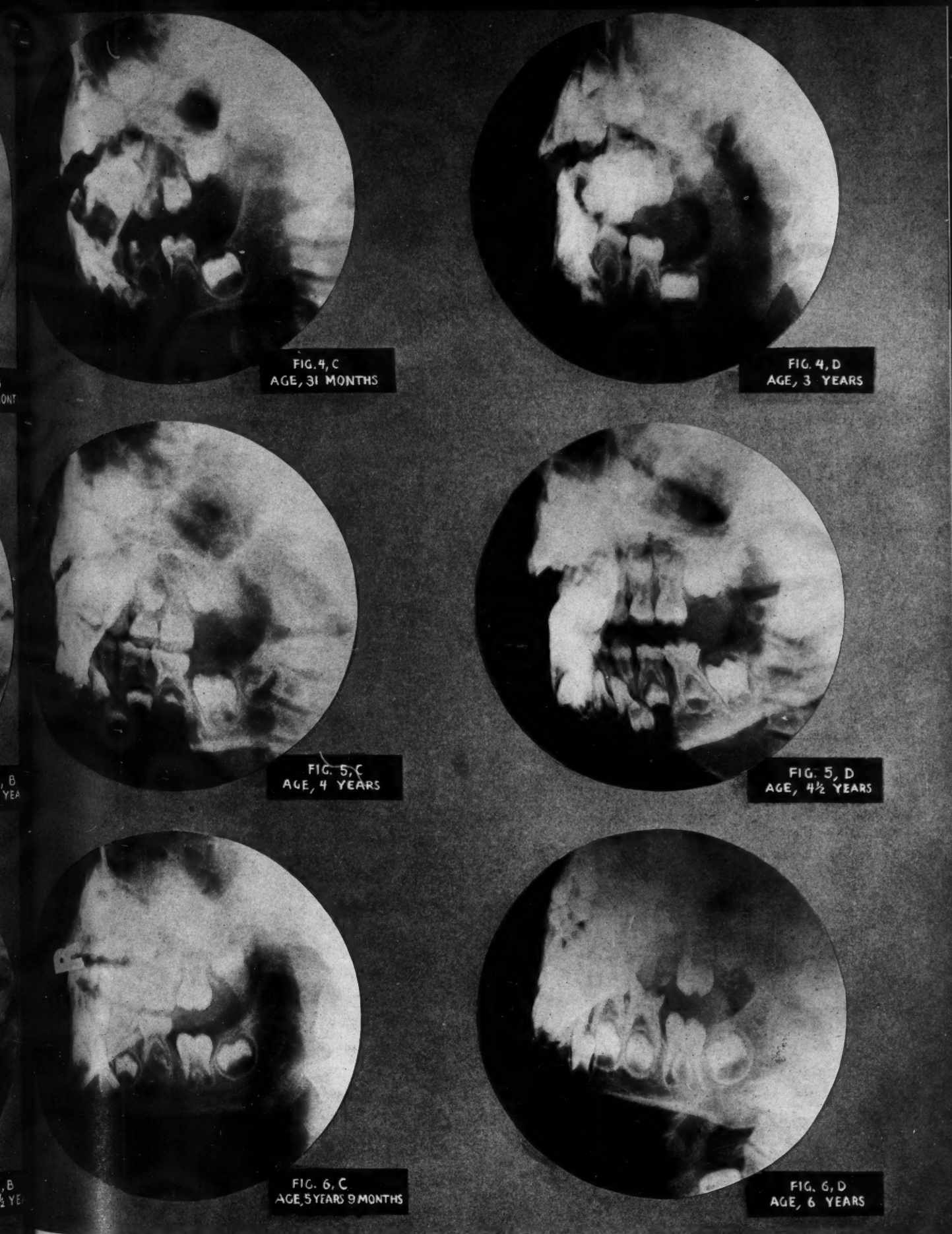


Fig. 5—This group demonstrates the calcification of the bicuspids. A, Tooth bud of the second permanent molar. C, A good "normal."

Fig. 6—Progressive calcification of the bicuspids and second permanent molars.

RESTORING THE UPPER FIRST BICUSPID

JEROME M. SCHWEITZER, D.D.S.
New York

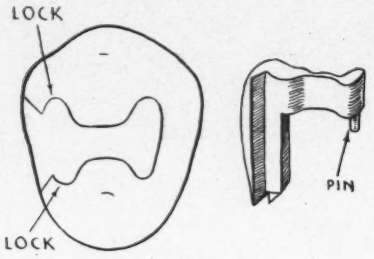


Fig. 1

IN RESTORING the upper first bicuspid when the tooth in position on each side is vital, the usual procedure is to replace the tooth by means of a fixed bridge. In this procedure the pontic is soldered to a mesio-occluso-distal inlay, or a mesio-occlusal inlay, or a three-quarter crown, which is placed on or in the second bicuspid, with a lug resting on an unprepared cuspid or in an inlay prepared in the cuspid with a

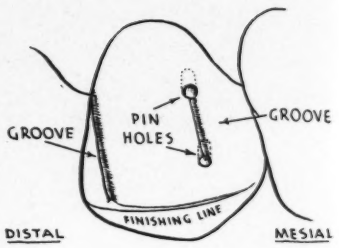


Fig. 2

Fig. 1—Additional retention of bicuspid inlay.

Fig. 2—Cuspid preparation.

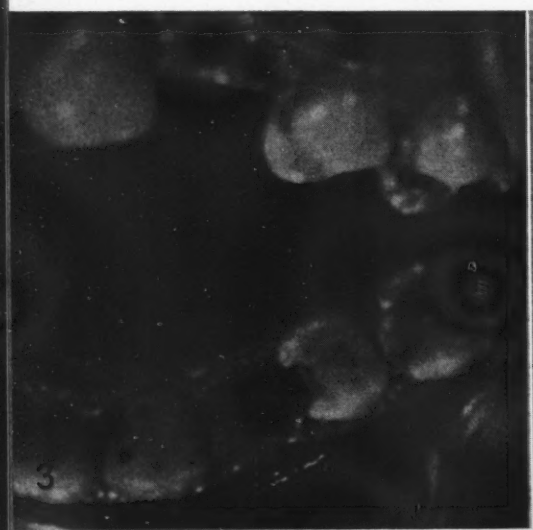
Fig. 3—In the lingual view of the cuspid are seen two countersink holes with the finishing groove just below the incisal edge. The first bicuspid was extracted one week previous to taking the photograph. The bicuspid preparation with the mesial lock can be seen.

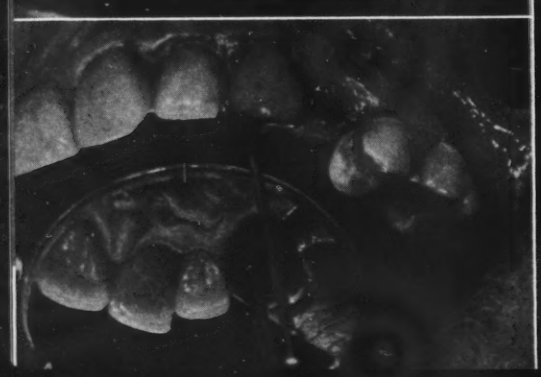
Fig. 4—Wax is pressed into position on the cuspid and trimmed as carefully as possible. A strip of rubber dam is drawn taut around the tooth. A hot instrument causes the wax to flow and better adapt itself to the tooth. The rubber dam is removed and two plain pins, which were fitted into the holes, are heated and pressed into the two holes and allowed to cool. The pattern is withdrawn.

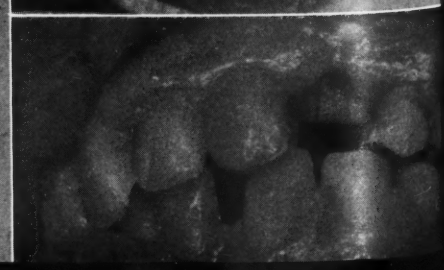
Fig. 5—The entire lingual surface is then invested for casting. The investment is brought around to include everything but the pins and the surrounding wax of the lingual surface. When the investment is hard the pins are heated and pulled out and the holes are waxed.

Fig. 6—A single sprue pin is then inserted and the remainder of the wax is invested and cast.

Fig. 7—The bite is adjusted. Sufficient gold is left on the cuspid at the incisal to allow for trimming when the bridge is finished. An impression is now taken, a check-bite, and the bridge is constructed as indicated in the text.







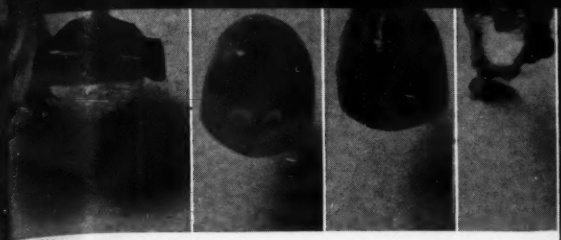


Fig. 8—The different portions of the bridge taken apart. It is always wise to grind in an extra tooth in case one breaks. Note the lock lug. The bicuspid inlays receive this. Note the pontic attached to the cuspid inlay.

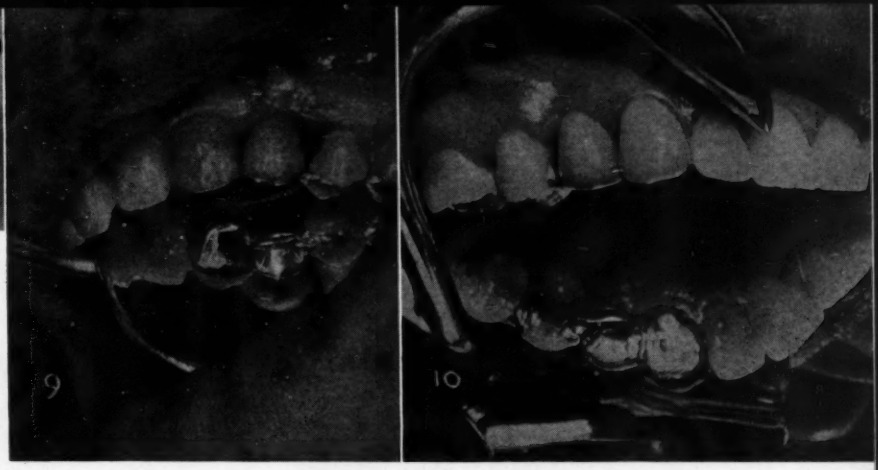


Fig. 9—The bridge cemented in the mouth. The incisal gold of the cuspid inlay has been trimmed and finished. The bite has been adjusted. Also, note that the bucco-lingual diameter of the pontic is smaller than the original bicuspid. Less trauma takes place when grinding the teeth. The porcelain pontic has been put in with only a small amount of gutta-percha. As this socket is not completely healed, it is not wise to cement the tooth permanently. In a short time the tooth is removed to observe the socket. When the operator is satisfied that the healing is complete, then the tooth may be permanently cemented. Sometimes, porcelain must be taken away from the pontic as the socket heals; at other times, porcelain must be added to the pontic and reglazed, before the final cementing.

Fig. 10—An example of the same type of bridge on the right side.

lock lug on the distal of the cuspid. The inlay in the bicuspid must be retentive to hold the bridge, and the cuspid must have a considerable portion of the distal taken from it in order to allow for the lug. If no preparation at all is used on the cuspid, then the fear of decay beneath the lug which rests on it is always present.

I use a method at present which I feel overcomes these difficulties. If the adjoining teeth are in good condition, a mesio-occlusal inlay is prepared in the second bicuspid. This inlay should be made retentive by means of a lock in the mesial surface, or a countersink pin in the distal surface or mesio-cervical floor, or both, as security against loosening when the bridge is cemented (Fig. 1).

730 Fifth Avenue.

PREPARATION OF CUSPID

1. If the missing bicuspid is an upper left, the lingual of the upper left cuspid is ground away to allow for a thickness of gold; the mesial marginal surface and the incisal edge are not disturbed at all.

2. A groove is made, just distal to the mesial margin on the lingual surface, running parallel to the mesial margin, and two pins are countersunk, one near the incisal margin and the other near the cervical margin. The two countersunk holes must be parallel to the same plane in order to withdraw the pattern successfully.

3. The distal marginal ridge is removed with a stone, and a groove is placed here with a Tinker 71 bur, running parallel with a line running labially from cervical edge to incisal edge.

4. In order to prevent showing gold at the incisal edge a finishing line is cut from the mesial hole to the distal groove and this line is below the incisal edge (Fig. 2).

5. A Steele's porcelain pontic is then ground in and soldered to the cuspid inlay with a lock-in lug in the bicuspid inlay. By reversing the order in this way the desired results are accomplished; namely: (1) the esthetic result is excellent; (2) the cuspid need not be cut deeply on the distal surface to allow for the lug; and (3) the bicuspid does not need extensive preparation, because it only supports a lock-in lug and not the pontic.

ADMINISTRATION OF ETHYL CHLORIDE ANESTHESIA

(*Continued from page* 265)

chanical blocking of the throat by the tongue or aspirated blood.

WARNING

1. Not all patients will react in the same manner to ethyl chloride. Alcoholic addicts are poor subjects. It is my experience that red haired patients have to be watched more closely than blond patients and blonds more than brunettes. Red-heads and blonds will offer a greater resistance to the anesthetic than brunettes.

2. Another observation is that not *all* ethyl chloride preparations produced by manufacturers are alike. I have not been able to ascertain whether this is due to lack of purity of the product, or age of the drug. One must find a preparation of ethyl chloride that is satisfactory and use it consistently for best results.

3. Ethyl chloride should be kept in a dry, dark place, away from heat or moisture.

14 Franklin Street.

EMERGENCIES

1. While administering an ethyl chloride anesthetic, should anything take place that would make the operator dubious as to the normalcy of the anesthetic, remove the mask at once.

2. Should cyanosis develop, remove the mask and with the forefinger of the right hand, move the posterior third of the tongue forward to open the throat and permit air to enter it (Fig. 7).

3. Should the operator notice difficult or labored breathing, the anesthetic should be stopped at once, and with the left hand (Fig. 8) the body of the patient should be pushed forward, so that the head is in position between the knees; at the same time the region of the diaphragm is massaged upward with the right hand (Fig. 9).

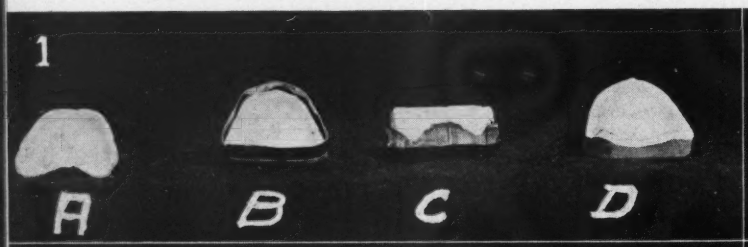
4. If, for any reason, the anesthetic has to be discontinued before the operation is begun or finished, do not continue with ethyl chloride. Either postpone the operation or use some other anesthetizing agent.

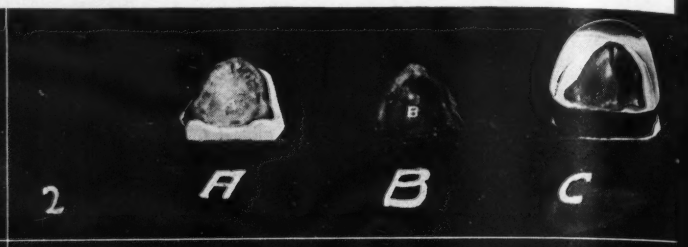
CONCLUSION

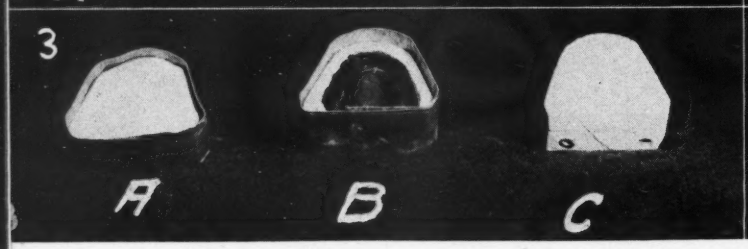
I have personally given about 3,500 ethyl chloride general anesthetics to patients ranging from 9 months to 15 years of age. Doctor Jacobs of the Forsyth Clinic in Boston reports about 195,000. Doctor M. Hillel Feldman has given in his private practice and in the Clinic of Lincoln Hospital, New York, more than 60,000 anesthetics of ethyl chloride and at no time was any difficulty encountered. Leeds Dental Hospital, England, has used ethyl chloride for fifteen years without a mishap.

CAST INDIVIDUAL IMPRESSION TRAYS

LEONARD S. FLETCHER, D.D.S.
Castle Shannon, Pennsylvania

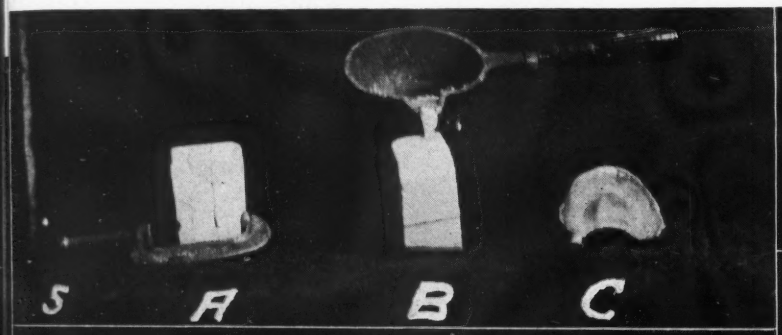


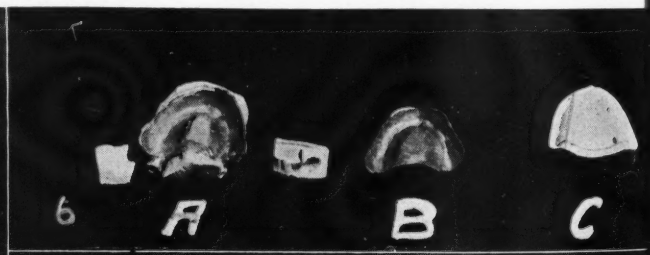


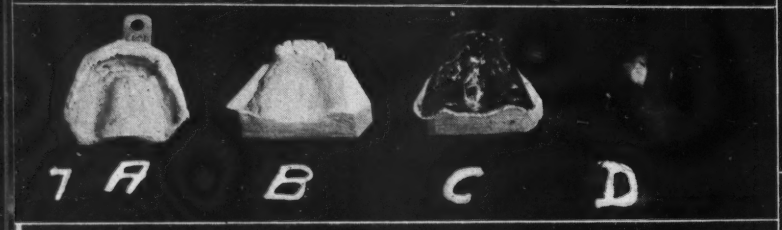


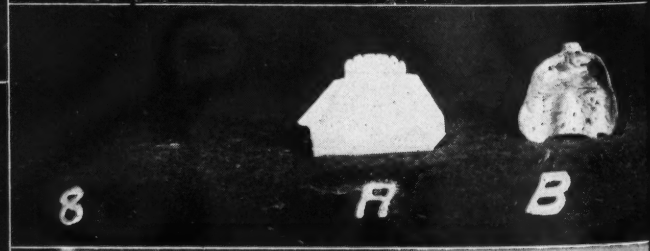
MANY failures in prosthodontia are due to insufficient retention in the dentures, caused by the distortion of the impression in removing them from the ridges. For instance: When an upper impression adheres tightly to the tissue, we place the index finger on the peripheral rim of the impression in the tuberosity region and try to force this portion of the rim outward and downward. Unless the tray or impression material is strong enough to withstand this pull, the impression will be distorted on removal. This will result in a distorted cast,

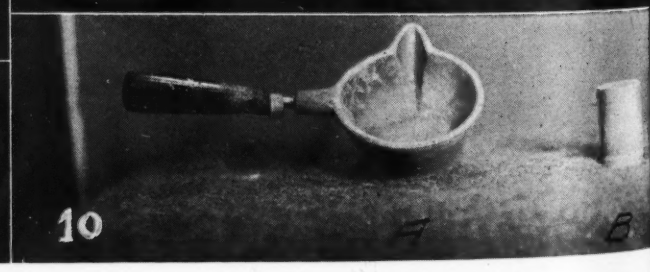
Legends on opposite page











Technique

FIG. 1

Step 1. Take a snap impression of the ridge (A).

Step 2. Box-in snap impression with metal rim (B).

Step 3. Pour snap impression with plaster (C).

Step 4. Separate cast from snap impression (D).

FIG. 2

Step 5. Adapt one thickness of baseplate wax over the snap cast and dust freely with talcum powder (A).

Step 6. Adapt the second thickness of baseplate wax over the first powdered wax (B).

Step 7. Place the second piece of adapted wax (B) on the workbench with the tissue surface downward; box-in with a rim of soft metal, leaving at least one-fourth inch clearance between rim of wax and metal form (C).

FIG. 3

Step 8. Mix flasking plaster and pour over the wax within the metal form so as to have at least one-fourth inch of plaster at the thinnest area (A).

Step 9. Invert this half-invested wax form and remove any plaster that has run over the periphery onto the tissue surface. Allow this plaster containing the wax form to drop to the bottom of the metal form. Paint the plaster with a good separating medium (B).

Step 10. Mix flasking plaster and pour over the wax to the height of the metal rim. The wax form is now full flasked and the metal rim removed (C).

FIG. 4

Step 11. Force a knife blade between the two halves of the mold at the center of the heel and separate (A).

Step. 12. Remove the wax and cut a hole through the plaster rim at the distal of each tuberosity of the half of the mold from which the wax has been removed. When the metal is poured in one hole, the other will act as an air escape (B).

FIG. 5

Step 13. Close the two halves of the mold; hold together with a C clamp and stand it on the workbench (A).

Step 14. Melt the metal in a ladle and pour in the hole on one side of the mold until it overflows from the hole in the opposite side (B).

Step 15. Separate the two halves of the mold as mentioned in step 11 and break the plaster away from the cast tray (C).

FIG. 6

A. Rough cast tray.
B. Cast tray with excess metal ground away.
C. Original snap cast.

FIG. 7

The technique for making a cast individual tray for an immediate denture varies only in steps 5 and 6. The substitute steps are herewith given:

Substitute Step 5. From the snap impression (A) make a snap cast (B). Over this snap cast, adapt one thickness of Kerr's Utility Wax or Dentsply Boxing Wax and dust freely with talcum powder (C).

Substitute Step 6. Over this black wax adapt one thickness of baseplate wax (D).

FIG. 8

A. A snap cast of an immediate case.
B. A cast individual tray for same case.

FIG. 9

A and B. After adapting the second piece of baseplate wax, add an extension of wax from the base of the labial rim which will later form the handle of the tray when making the casting.

C. When making a cast tray with a handle make the sprue hole at the end of the wax handle extension, instead of at the heel of the mold.

FIG. 10

A. A desirable ladle in which to melt the tray metal.

B. An ingot of low-fusing special tray metal from which nine to twelve separate trays may be cast before remelting any of the trays.

and in the end, an incorrect adaptation of the denture to the tissue in the area of the postdam at that tuberosity.

This error can be eliminated with the use of a cast individual tray of sufficient firmness to prevent any distortion of the impression while dislodging, regardless of the impression material used for registering the negative of the tissue.

SUGGESTION

It is preferable to have the plaster mold dry when pouring the metal. Pour the metal as rapidly as possible. After separating the mold into which the metal has been poured, we may find that the tray did not fully cast. Should this occur, stand the half of the mold containing the partly cast tray on the workbench and melt the metal from the mold with the flame of a blowtorch. Close the mold and hold together with the C clamp, and make another pour.

3745 Poplar Street.

STONE MODELS FOR INDIRECT CASTINGS

ROBERT S. HINES, D.D.S.

Cleveland, Tennessee

I WILL not try to settle the question of which die material is the better or more accurate, stone or metal. Each has its advantages and disadvantages.

Stone dies, when properly made, are to my mind by far more practical and are easier to make. They can be used for almost any type gold restoration, inlays, three-quarter and full crowns. Less time is required in making them, and they may be used immediately after they set—usually in fifteen minutes. Stone changes to some extent on drying; it is best, therefore, that the pattern be carved before the die thoroughly dries; that is, from six to eight hours after it is made.

If stone is used as a die material, inlay wax may be used as an impression material. After the stone has set sufficiently, the band is slit and the pattern carved; the impression wax is used for carving. By using inlay wax for taking the impression, one is able to obtain a finer, more accurate impression than with any other material.

Technique

1. A clean-cut impression is obtained in inlay wax.
2. Thoroughly dry with blasts from a chip blower.
3. A thin coating of light machine oil is then painted on the impression with a fine camel's hair brush.
4. A simple vibrator for use in the handpiece may be made in the following way:
   - A. Flatten an orangewood porte-polisher (Fig. 1).
   - B. Insert the orangewood porte-polisher in a mandrel (Fig. 2).
   - C. Place the inlay wax, copper band impression in the tin lid from a small box.
   - D. Mix the artificial stone into a stiff mix on a cement slab.
   - E. Using a beaver tail burnisher, place small amounts of the stone in the impression and vibrate to place by striking the tin upon which the impression is placed with the vibrator (Fig. 3).
5. A piece of stone is rolled between the fingers into a handle; this is placed on top of the full impression.
6. After the stone has set, the copper band is slit and the die is separated from the impression.
7. The die is oiled thoroughly; the wax impression replaced, and the pattern carved.

Heartsill Building.

Fig. 1

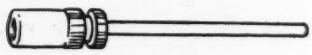


Fig. 2

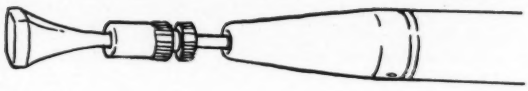


Fig. 3

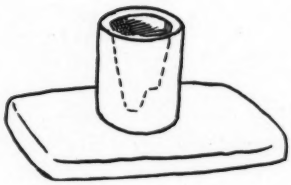


Fig. 4

Fig. 1—Orangewood porte-polisher.

Fig. 2—Porte-polishing mandrel.

Fig. 3—Vibrator assembled, showing handpiece also.

Fig. 4—Copper band impression on box lid.

The Editor's Page

GLOSSODYNIA (hyperesthesia, burning tongue, or glossopyrosis) is a condition that is sometimes encountered in dental practice. A burning or painful sensation of the mucous membrane over the palate or ridges is an occasional complaint of persons wearing full dentures. The hyperesthesia in the edentulous is thought by some to be produced by pressure of the denture base on the nerves and vessels that emerge through the anterior and posterior palatine foramina. Burning sensation under denture bases has been frequently explained on the basis of low tissue tolerance to mechanical and possible chemical irritants. Persons whose "threshold for pain" is low and whose nervous irritability is high are the most common sufferers from glossodynia or hyperesthesia of the oral mucous membranes.

All observers agree that the majority of persons afflicted are women. Women at or beyond the menopause[1] are more often sufferers than younger women. Blair[2] believes that the condition is encountered in anemic, poorly nourished, neurotic women. In Gilpin's[3] series of forty-eight patients from the Mayo Clinic, thirty-seven were women and the average age of the whole group was 54.3 years.

Both Prinz and Greenbaum[4] and Gilpin[3] comment on the relationship between burning, painful tongue and gastric hyperacidity. Gilpin quotes Sellei[5] who postulated that glossodynia represents a reflex disturbance from the stomach over the vagus nerve to its nucleus in the fourth ventricle and then to the nucleus of the fifth cranial nerve and over the branches of the trigeminal nerve to the tongue. Sellei found, and his observations, according to Gilpin, were confirmed by Morelli,[6] that the administration of alkalis and dietary therapy relieved the burning sensation.

Prinz's description of the typical symptoms is excellent:

> The outstanding symptom in all cases is typically characteristic, i.e., a burning sensation within the anterior third or the tip of the tongue and near its borders. Occasionally, the painful region extends to the soft and hard palate and to the vermilion border of the lower lip. The diffuse pain is usually described as being of a burning character, sometimes as itching or boring and, at other times, as presenting all variations of an indefinite diffuse painful sensation. The pain is more or less constant but never paroxysmal. The patient gives the impression of being deeply depressed. There are no points douloureux to be observed. The pain usually disappears during animated conversation or when the patient's attention is concentrated upon some inspiring subject in which he is vividly interested. Paresthesia is frequently present.
>
> A common complaint is dryness of the mouth resulting from more or less inhibition of the flow of saliva, while taste and thermal sensibility are not altered by the disease. On the other hand, the pain is usually increased when the tongue is brought in contact with liquid or solid food.

Gilpin mentions the empirical treatment that patients with this condition have frequently suffered at the hands of dentists and physicians. Persons with a burning sensation of the tongue, palate, or oral mucous membranes frequently believe that some dental condition is responsible: a crown; an edentulous space; a bridge. Dentists have been known to recommend radical treatment in cases of "heavy dentistry" on the basis of a possible electric phenomenon produced by dissimilar metals in restorations. Physicians may recommend extractions "on general principles."

If burning sensations in the mouth are of psychoneurotic origin (Gilpin) or represent a reflex disturbance or are produced by a general metabolic derangement, it is evident that local dental treatment should be extremely conservative. To extract teeth and subsequently insert extensive restorations in a mouth already in discomfort, and thus introduce an additional mechanical irritant is not sane treatment. All authorities agree that local treatment is futile. Glossodynia is another example in which the combined skill of the dentist and physician is required.

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[1]Osler, William; and McCrae, Thomas: The Principles and Practice of Medicine, Ninth Revised Edition, New York, D. Appleton & Co., 1920, page 453.

[2]Blair, V. P.: Surgery and Diseases of the Mouth and Jaws. Third Edition, St. Louis, C. V. Mosby Company, 1918, page 533.

[3]Gilpin, S. F.: Glossodynia, J. A. M. A. 106:1722 (May 16) 1936.

[4]Prinz, Hermann; and Greenbaum, S. S.: Diseases of the Mouth and Their Treatment, Philadelphia, Lea & Febiger, 1935, page 458.

[5]Sellei, Josef: Durch Hyperazidität verursachtes Zungenbrennen, Deutsche med. Wchnschr. 2:1758 (October 19) 1928.

[6]Morelli, Gustav: Reflectorische Ueberempfindlichkeit der Zunge (Hyperaestesia reflectorica linguae), abstr. Zentralbl. f. Haut.-u. Geschlechtskr. 29:309, 1929.

A REBASING TECHNIQUE

P. N. OGLE, D.D.S.
Knoxville, Tennessee

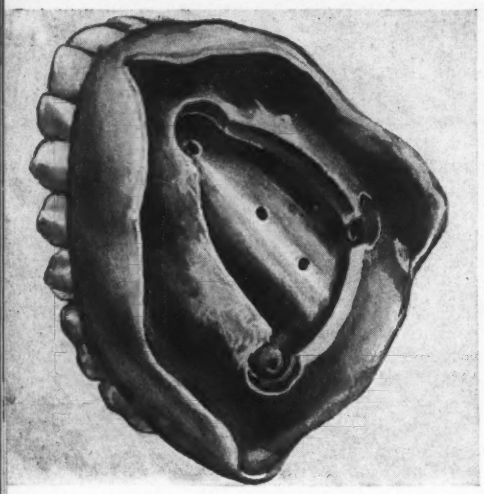

Fig. 1

Fig. 1—Palatal view of full upper denture prepared for rebasing technique. The palate has been cut away to give relief over the anterior palatine and posterior palatine foramina and over the bony eminence of the hard palate. Metal plate waxed in position.

Fig. 2—Lingual aspect of full upper denture prepared for rebasing. The metal on the palatal surface is held in place with sticky wax. The holes in the metal plate allow for escapement of plaster when the impression is taken.

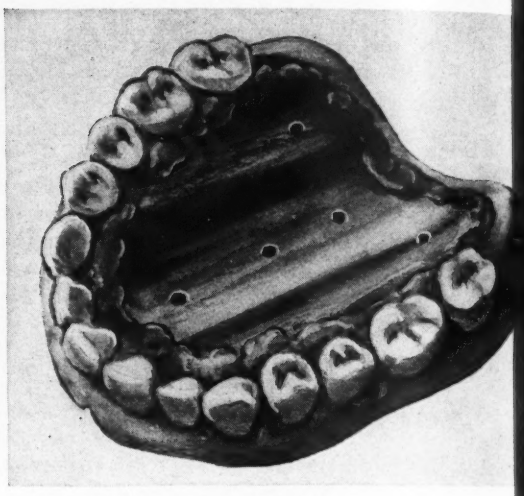

Fig. 2

REBASING full upper dentures is a service that every dentist is frequently called on to perform; without having a definite technique to follow, it is difficult to obtain good results. Papers have been written and many clinics have been given on full upper impression techniques, but to my knowledge no definite plan of procedure for rebasing has ever been given. A simple technique that I have been using for some time has proved satisfactory. This technique can be used in taking an impression for a full upper denture as well as for rebasing.

Technique

1. The part of the palate that covers the hard area is cut out, and the opening is extended to include the anterior and posterior palatine foramina (Fig. 1).

2. A piece of metal (tin or aluminum), larger than the opening in the palate is cut to conform to the under side of the denture and fastened with sticky wax.

3. Holes are bored in the metal at the foramina and hard palate to allow for the escape of the excess plaster while taking the impression (Fig. 2).

4. The patient is instructed to hold the denture in place with pressure until the plaster sets. This will place the stress only on the stress-bearing area, and will not allow pressure on the hard palate or over the foramen; but it will give adaptation to soft tissues.

5. The impression or wash is then taken in the usual way.

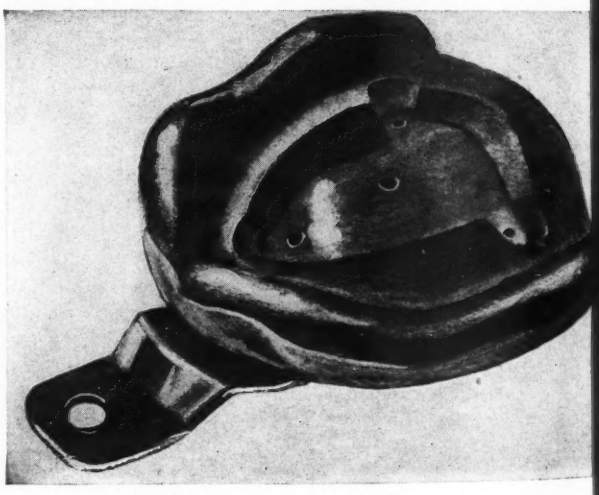

Fig. 3

Fig. 3—Modeling compound impression relieved in the shape of a "T" to include bony eminence on the hard palate and the principal nutrient foramina. In this technique the holes are drilled through the metal impression tray to allow for the escapement of plaster on taking the "wash" impression.

Impression for Full Upper Denture

Modeling compound is used for the initial impression. The compound is chilled, trimmed, and cut out for relief in the same shape as described in the rebasing technique. Holes are then bored in the metal impression tray to allow the escape of excess plaster. Trenches should not be cut at the postdam as the perforations in the tray will take care of the excess (Fig. 3).

Medical Arts Building.

ABOUT OUR CONTRIBUTORS

GEORGE W. MATTHEWS, D.D.S. (Northwestern University, 1927) was the co-author of an article, ORAL SURGERY: REPORT OF CASES, with Harry Bradford, D.D.S., which appeared in the May, 1936 issue, and his professional biography was given in that number of this magazine.

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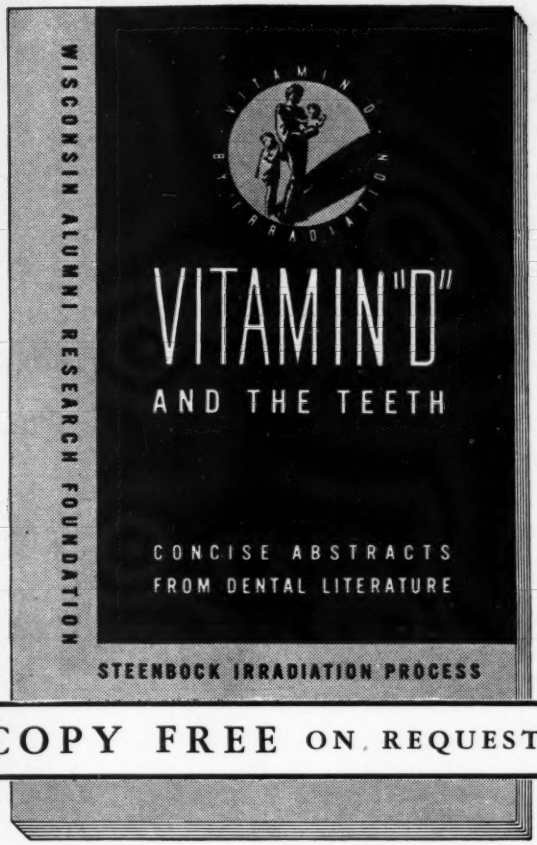

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A. D. A. CONVENTION REPORTS

"Dental Groups Warmly Debate Policy Changes"
"Delegates Pass Measure For New Education Council Setup"

"Two bitterly opposed factions threw the American Dental Association convention into an afternoon of acrimonius debate . . . over a proposal embracing far-reaching changes in dental education, foundation stone of the profession.

"Designed to elevate the standards of dental education by centralizing control in the association itself, the proposal was passed after a stormy session of the House of Delegates, legislative body of the association, at the Hotel St. Francis.

"It provides:

"1—For reduction of the Dental Educational Council to a membership of seven. The council was hitherto composed of nine members, three each from the American Dental Association, the National Association of Dental Examiners and the American Association of Dental Schools.

2—That all appointments to the council be made by the board of trustees of the American Dental Association. The appointive power has hitherto rested in the three organizations represented on the council.

"3—That the council include three representatives of the American Dental Association and two representatives each of the other two bodies.

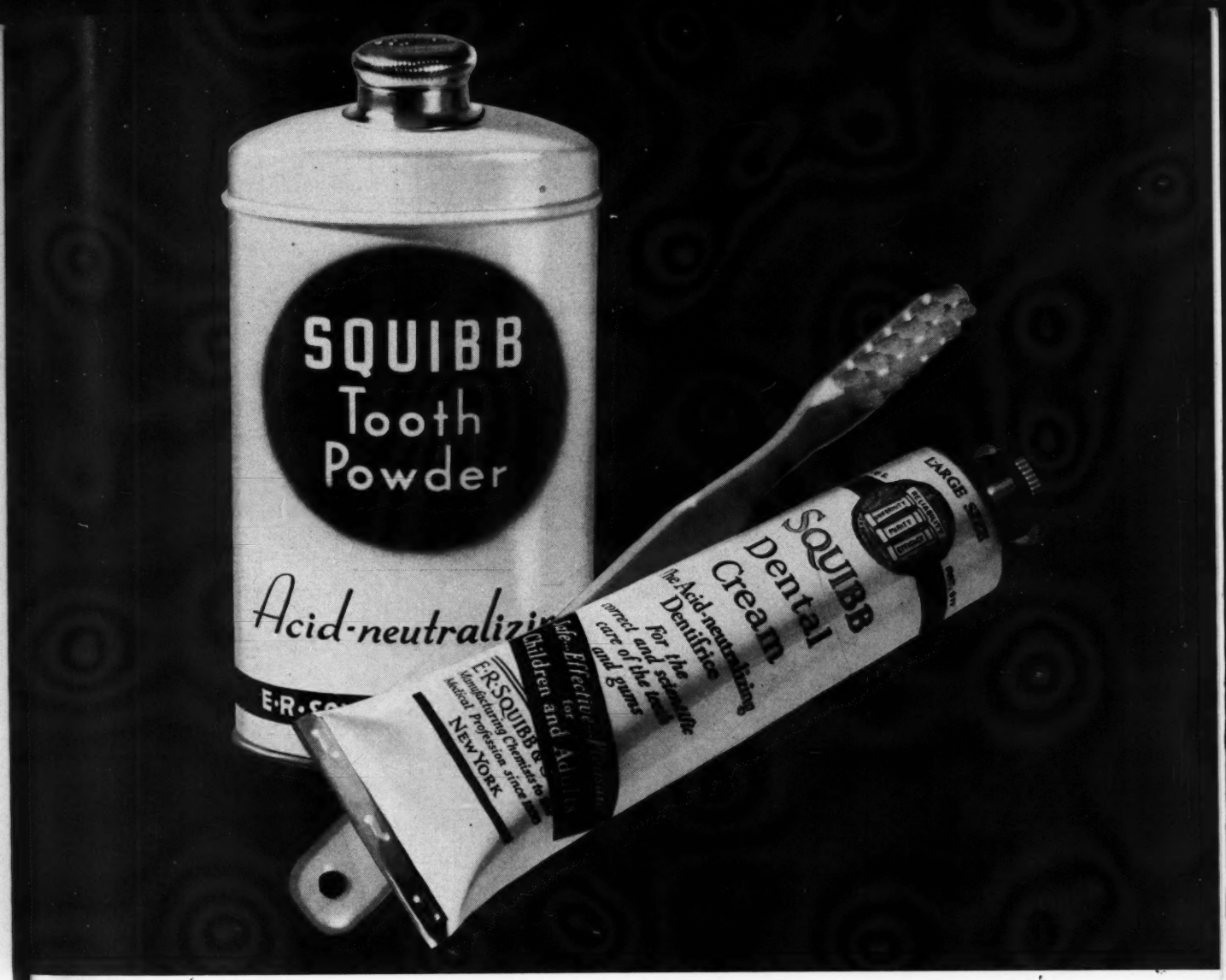
"Since 1909, the council has had full control over the classification of dental schools throughout the country and has thus wielded great power in setting the standards for admission to the profession. Under the new setup, this power will vest in the dentists themselves.

"Recommend Change"

"The changes were recommended in a report from a reference committee on education, headed by Dr. T. E. Purcell, dean of the St. Louis University Dental School, and including Dr. William A. Davis of Lansing, Mich., and Dr. A. Y. Russell of Baltimore, Md.

"Strenuous opposition came from Dr. Albert L. Midgley, representative of the examiners' association on the council, who demanded equal representation for the three groups, and from Dr. Shepherd W. Foster of Atlanta, Ga., representing the school association on the council.

"Dr. Foster condemned the proposal and resigned from the council forthwith.



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2. Check your diet with your physician or dentist—to be sure your system is getting the elements essential to the health and strength of your teeth.

3. Brush your teeth thoroughly, at least twice a day, and be sure you use a dentifrice scientifically prepared to clean teeth effectively, and safely.

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"MOVE SUPPORTED"

"Dr. Marcus Ward of the University of Michigan, also representing the school group on the council, vigorously supported the reference committee's recommendations. Dr. Ward lauded the new arrangement as a great forward step for the profession and as a close pattern of the system used by the American Medical Association.

"Dr. Purcell said:

" 'This committee is simply attempting to give the dental profession the main voice in its own affairs. Control of dental education should rest mainly with this association and not with the dental schools or the dental examiners.' "

—*From: San Francisco Chronicle, Thursday, July* 16, 1936.

"CHIEF CONDEMNS COMPULSORY HEALTH INSURANCE"

"DELEGATES . . . GUARD PROFESSION"

"America's dentists, assembled in San Francisco for their seventy-eighth annual convention, swung into action yesterday bent on drafting a program that will both safeguard their profession and adequately provide for human needs.

"Keynotes on the program were sounded in the presidential message of Dr. George B. Winter of St. Louis, delivered before the convention's first general session in the Hotel St. Francis.

"Concentrating on dangers confronting the profession through possible legislative enactment, Dr. Winter uttered a sweeping condemnation of compulsory health insurance and called upon the delegates to prepare for combat against such measures.

" 'We are on the threshold of a period,' he said, 'in which the fate of dentistry and medicine is held in the balance. We must be ready to participate in the struggle and to properly guide the destiny of our profession.

" 'The association has compiled a wealth of material showing the harmful results of State medicine and health insurance.'

"For successful resistance of movements toward socialized dentistry, Dr. Winter looked to a close alliance with the medical profession and a vigorous educational campaign.

"SOCIALIZED DENTISTRY"

"His words were echoed by Dr. Sanford Moose, president of the California State Dental Association.

"Referring to the appointment of State legislative committees to study

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the feasibility of socialized dentistry in California, Dr. Moose said:

" 'If any form of sick insurance is presented to the Legislature, the dental profession will fight to insist that it provide protection for the standards of dental health service now maintained in California. We will likewise insist on the preservation of the standards already fixed for those within our ranks.

" 'In short, we are determined never to be forced down to the standards of European countries which have adopted a health insurance or panel system.'

"War on Charlatans"

"Dr. [C. Raymond] Wells appealed to the convention for alertness and decisive action in driving 'quacks and charlatans' from the profession and for legislation which would assure the American dentist the right to practice without interference from outside agencies."

—*From: San Francisco Chronicle, Wednesday, July* 15, 1936.

"Improper Application

"Dr. Hartman blamed failure of the solution to produce complete anesthesia on improper application. It has been used effectively in all parts of the world, despite charges of the skeptical, he said."—*From: San Francisco Chronicle, Tuesday, July* 14, 1936.

"Here's Way To Brush Teeth"

"A man whose life work is to make people brush their teeth hard and often gave his ideas to a scientific section of the American Dental Association yesterday.

"Dr. Frederick A. Bricker of Los Angeles declared:

" 'Use as hard a tooth brush as you can buy.

" 'Work the bristles between the teeth, to force the blood out of the gums, thereby effecting circulation.

" 'Good circulation will prevent pyorrhea, the most common cause of losing teeth.

" 'Brush as vigorously as possible without pain or discomfort. To cause pain is to cause irritation and consequently harm.

" 'Remember, the gum tissue is as strong as that covering the palm of the hand and sole of the foot. Don't be afraid of a thorough massage.' "

—*From: The San Francisco Examiner, Thursday, July* 16, 1936.

"DENTISTS ELECT NEW OFFICERS"

"DOCTOR C. W. CAMALIER NAMED PRESIDENT FOR 1937-38 TERM"

"Dr. C. Willard Camalier of Washington, D. C., was elected president of the American Dental Association for the 1937-38 term . . . in the final business session of the association's seventy-eighth annual convention at the Hotel St. Francis.

"Dr. Raoul H. Blanquie of San Francisco was unanimously elected first vice president for the ensuing year.

"A private practitioner, Dr. Camalier was opposed only by Dr. Marcus L. Ward, former dean of the University of Michigan Dental School. His election was a reflection of the dentists' desire to fill key positions of the association with men engaged in private practice."

"COUNCIL REDUCED"

"The delegates also stamped final approval on a plan reducing the Dental Educational Council from nine to seven members by allowing the association three representatives on the Council, with two each from the American Association of Dental Schools and the National Association of Dental Examiners. The three groups were hitherto represented equally.

"A moment before adjournment, Dr. George B. Winter of St. Louis, retiring president of the association, surrendered the chair to Dr. Leroy M. S. Miner, incoming president, who will be succeeded next year by Dr. Camalier. Dr. Winter was guest of honor at the president's ball in the Hotel St. Francis . . .

"OFFICERS NAMED"

"Atlantic City, N. J., was chosen as the convention city for next year and the following officers were elected, their terms to commence immediately:

"Vice presidents: Dr. J. V. Gentilly, Cleveland, Ohio; Dr. J. A. Blue, Birmingham, Ala.

"The following were reelected: Secretary, Dr. Harry B. Pinney, Chicago; treasurer, Dr. R. H. Volland, Iowa City, Iowa; trustees, Dr. Harvey J. Burkhart, Rochester, N. Y.; Dr. C. R. Lawrence, Enid, Okla.; Dr. Herbert C. Miller, Portland, Ore.; Dr. Wilfred H. Robinson, Oakland."—*From: San Francisco Chronicle, Friday, July* 17, 1936.

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